Vol.3 Special Issue No.1 (2020)

Journal of Applied Learning & Teaching

ISSN : 2591-801X

Content Available at : http://journals.sfu.ca/jalt/index.php/jalt/index

Supporting digital engagement: An evaluation of the use of a Guide for effective development and facilitation of online discussion boards

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Keywords

Analytics;
asynchronous;
digital;
discussion board;
educator;
engagement;
facilitator;
higher education.

Article Info

Received 4 March 2020
Received in revised form 3 May 2020
Accepted 29 May 2020
Available online 5 June 2020

DOI: https://doi.org/10.37074/jalt.2020.3.s1.13

Abstract

The growth of blended and online learning within the higher education sector has required academic staff to develop new skills and confidence in delivering online pedagogy that successfully engages students. Previous research indicated it would be beneficial for staff to develop a common understanding of best practice in learning and teaching using asynchronous discussion boards. The aim of this research was to investigate use of the online Guide by facilitators, who are responsible for developing and facilitating online discussion boards and supporting students' digital engagement. Findings of previous research was used to inform development of the Guide. Additionally, a review of peer-reviewed and grey literature was undertaken. The researchers collaborated during a series of production workshops to plan, develop and write the Guide. Two members of the team assisted with conversion of the product into an open access online tool hosted by the University of Tasmania learning and teaching website. Feedback regarding the structure and content was embedded on the website to enable users to suggest improvements. Google Analytics data was collected monthly and ePrint data was also monitored. Findings over a 12-month period indicated the Guide was predominantly accessed by Australian users, although there has been growth in downloads of chapters from other English speaking countries. Reports indicate a high proportion of new sessions each month, peaking with the need to 'super speed' learning and teaching online due to COVID-19 health and well-being restrictions within the higher education sector, indicating that the Guide is appealing to a growing global audience.

Introduction

Facilitating student involvement is integral to successful student engagement when using digital technologies. Academic staff need to be confident in offering an online pedagogy that enables peer-to-peer learning, whilst using a networked approach to learning and teaching. However, learning and teaching in an online environment is challenging, particularly when endeavouring to engage students in active discussion. Communicating online is often asynchronous and can pose frustrations for all users. The main tool, utilised in learning management system (LMS), to provide communication between staff and students and between students, is the online discussion board (Andresen, 2009). Online discussion boards are utilised for multiple purposes in LMS including question and answer, social interactions and active discussion about the course or unit content, and general and assessment information. Online discussion boards may or may not be facilitated by academic staff. Facilitated asynchronous online discussion (AOD) boards are known to provide a flexible, constructive form of professional learning to support student learning (Thomas & Thorpe, 2019) and enable currency of unit content. AOD boards are known to support active learning and higher-order thinking, yet active engagement in online discussions by students is commonly not observed (Hew et al., 2010).

At the University of Tasmania (UTAS), online discussion boards are integrated into the blended learning framework of most units of study in a course (degree) within each unit's LMS site, known at UTAS as My Learning Online, or MyLO. Discussion boards are usually asynchronous and these forums within the MyLO tool are designed in a variety of ways determined by each unit coordinator. Recognising a lack of information or resources to support students and staff in the design and use of online discussion boards, particularly in relation to facilitation of discussions, a guide was developed for supporting the effective use of this tool. The ebook titled *Teaching and learning: Guide to online discussion boards* (hereafter known as 'the Guide') was released in 2018 and can be publicly accessed <http://www.teaching-learning.utas.edu.au/communication/online-discussions>. The Guide was initially advertised to staff at UTAS within staff professional development activities, UTAS staff news announcements, and new staff onboarding activities. The Guide is published with a permanent link in the University's open access repository <https://eprints.utas.edu.au/27198/> and can be located through web-based search engines.

The Guide was informed by existing literature and by UTAS staff and student perspectives of online discussions, which were researched via ethics-approved surveys and interviews. Previous studies have explored perspectives of educators, facilitators and students (Evans et al., 2019). These studies have consistently related recognition of satisfaction to one or more aspects of online discussion, including the structure of discussion forums, the level and type of interaction between educators and students and the quality of the discussion content (Ghadirian et al., 2017; Ladyshewsky, 2013; Thomas & Thorpe, 2019; Waters, 2012). Clear purpose of a discussion board is essential for engagement with identifiable student outcomes (Gregory, 2015; Steen, 2015). Research also identified issues with the design and facilitation of online discussion boards, including lack of student engagement, confidence and low levels of online communication skills of facilitators. The facilitator is often identified as the key to success or failure of discussions (Northover, 2002), with learning quality and student satisfaction largely driven by effective facilitation (Ladyshewsky, 2013).

The Guide is designed to assist staff in the creation and implementation of effective facilitated or non-facilitated online discussion. Irrespective of previous experience, the purpose of the guide is to assist educators in designing and utilising online discussion boards effectively. The guide consists of 8 chapters including an introduction and concludes with a checklist as illustrated in Table 1. Embedded within each chapter is a list of additional references and weblinks.

Table 1: Chapters of the Guide and included information.

Chapter	Included Information
Purpose	Discussion boards (DBs) must have clear purpose. This chapter presents the 'student voice 'and their perceptions of the use of DBs. Key reasons for incorporating DBs into curriculum design are discussed. How curriculum can be tailored to be more applicable to student and industry/professional needs are covered.
Discussion Board Design and Netiquette	Emphasis is placed on determining a clear purpose and goals for DBs. Educators are encouraged to consider unit learning outcomes, outlining the generic and the specific aims. Social connectivity is considered along with the types of discussion boards. Netiquette is also defined and addressed. Netiquette is defined as an outline of expectations, or clear 'rules of engagement'. This section includes: Discussion board design; social connectivity through discussion Boards; types of DBs; resources; netiquette and netiquette tips.
Student Engagement	Effective online teaching primarily relies on student engagement. To promote meaningful student engagement, there should be some degree of facilitation and constructively aligned to intended learning outcomes. The facts of student engagement are explored. This chapter includes: the student voice; student engagements tips and dealing with difficult behaviours.
Facilitation	This chapter flows from the previous chapter and addresses ways a facilitator can encourage active engagement and enrich learning experiences. The roles of a facilitator in gaining a robust discussion are covered along with circumstances that may impede success. This chapter includes: Facilitating a robust online discussion; Before discussion; during discussion; dos and don'ts during discussion and after discussion.
Assessment and Referencing	This chapter has two main parts, firstly it raises vexing issues of whether to assess or not, linking back to pedagogical goals. The student voice is again considered along with the perceptions of facilitators. Criteria for assessment (rubric) are addressed. This part includes: To assess or not to assess; Considerations when using assessment as an element ofthe discussion board. How to communicate requirements for referencing are discussed and examples of criterion referenced assessment are given. Both intext and end text referencing examples are provided.
Review & Evaluation	This chapter starts with the premise that effective learning and teaching practices require reflection, encouraging the review and evaluation of activities on a regular basis. Learning analytics are considered along with examples of surveys and peer review.
Checklist	This chapter summaries the overall content and includes general 'checks' and 'tips'. A section on time management concludes the Guide.

The implementation of the Guide as a free resource to support design and facilitation of online discussion boards is currently being investigated by the research team. Support includes, building confidence in unit coordinators to direct facilitators using the best practice exemplified in the Guide. Research has shown the Guide is a useful resource for all staff teaching online, and with an interest in online discussions as a learning and teaching platform. Evidence from students and staff at UTAS and data analytics regarding access of the Guide, both locally and globally may demonstrate the impact of the Guide in its initial two years of release.

The aim of this study was to investigate the use of an open access online Guide by facilitators who are responsible for developing and facilitating online discussion boards and supporting students' digital engagement. A snapshot of the use of the Guide globally is the main focus of this article.

Literature Review

Overview

Online education is now an integral part of higher education (Kebritchiet al., 2017; Li & Irby, 2008; Luyt, 2013). The rapid integration of online learning into higher education, further hastened by the 2020 COVID-19 pandemic, has meant that academic facilitators may be ill-equipped to transition effectively from face-to-face to blended or online modes of delivery of unit content. Blended learning and the delivery of online content requires an additional set of learning and teaching skills which includes re-imaging the digital learning space and realignment of pedagogical approaches (Mayes et al., 2011). Additionally, transition to synchronous or asynchronous online discussions also demands facilitators develop the requisite knowledge, skills and behaviour to engage and model online learning opportunities and etiquette to their students.

Online discussion boards

AOD is an effective communication tool in online learning. Kebritchi et al. (2017) identified four specific categories of issues and challenges for teaching successfully online. These categories included the changing role of the educator, transition from face-to-face to blended or online learning, time management, and teaching styles. Of relevance to this study was the struggle for facilitators who no longer had face-to-face contact with students to learn to engage and deliver content in an online learning environment (Crawley, et al., 2009). A barrier to engaging students when transitioning to online education is that facilitators often bring their traditional styles of teaching to the online environment, and these styles may be ineffective (Coppola et al., 2002). The effectiveness of online learning can be improved using AOD boards to support students' activity, exploration, and knowledge development (Juan et al., 2011). However, for novice online facilitators this can be challenging, and so the availability of high quality resources to support engagement is essential to enable effective online learning and teaching environments, for example, Teacherstream LLC (2010). Online discussion boards can be synchronous or asynchronous, with the latter the most likely scenario.

Synchronous online discussion board facilitation requires a teacher and social presence that promotes the importance of person-centred opportunities for learning (Garner & Rouse, 2016; Thomas & Thorpe, 2019). Effective engagement of learners requires online facilitators to establish the culture and tone of the group by maintaining an authentic presence that can enable students' to be motivated to develop a willingness to participate (Mokoena, 2013; Thomas & Thorpe, 2019). When positive group dynamics develop there is opportunity for students to learn effectively, so the intangible qualities of the facilitator to guide student learners cannot be underestimated (Mokoena, 2014; Thomas & Thorpe, 2019).

Synchronous and asynchronous online facilitation has well-documented challenges. These challenges include learner expectations such as readiness to learn, lack of engagement, limited interaction among participants and/or the facilitator or a lack of academic focus (Kebritchi et al., 2017; Verenekina et al., 2017). Unsound pedagogy can compound content and presentation issues (Kebritchi et al., 2017). Additionally, these issues can be further exacerbated by lack of preparation, incongruent facilitation styles or inexperienced facilitators (Mokoena, 2014, Kebritchi et al., 2017).

Facilitation

The value and success of eLearning programs is to a large extent dependent on the facilitators' skills and expertise. This was recognised by Hootstein (2002), who argued that facilitators wear "four pairs of shoes"; they must fulfil roles as instructors, social directors, managers and technical assistants. Facilitation requires a guided and supported training system, and must be based both on educational theories, and a model supporting online facilitation. Evans et al. (2019) suggest there is limited research exploring the training and support required for online facilitation and that future research is required. While there is emerging literature on the importance and contents of training for facilitators (Legros et al., 2015; Milot et al., 2017), along with well-established studies focusing on general training for online teaching (Gold, 2001; Hampel & Stickler, 2005), there is a lack of detailed insight into the specific training and support requirements of online facilitation (Evans et al., 2019). Given that effective online facilitation is crucial to student learning, the importance of effective training cannot be understated.

Costs

Increasing pressure on university budgets and the pressure to teach within resource constraints often conflict with facilitator preparation expectations. Failure to address the time it takes to prepare high quality online content that engages students and time allocated may lead to facilitators becoming isolated from their colleagues. Practical resources such as a guide to effective use of online discussion boards enable instructors to enhance their skills in AOD within a less isolated environment (Mayes et al., 2011).

Accelerated digitisation of learning

During 2020 there has been a rapid growth of digitalisation of teaching as the COVID-19 pandemic has become a major interlude in higher education, halting face-to-face classes and 'super-speeding' online learning and facilitation. Just as the Titanic sinking progressed naval architecture, educational responses to COVID-19 have propelled, and will continue to propel, online teaching and learning forward. Langford & Damsa (2020), discussing COVID-19 online teaching experiences and the acceleration of digitisation teaching at

record speed, estimated that such a process would normally take 15 years. These authors noted a need for pedagogical knowledge and guidance, improved understanding of what works for students, and opportunities to access information on how to design digital teaching from both experts and colleagues. University educators teach in different faculties and disciplines, using diverse teaching strategies pertinent to particularcohorts of students.

The Guide is a result of the authors' collective experiences drawn together to assist other educators and students. As educators during the pandemic we moved quickly to online delivery; concerns naturally arose about the quality of remote education. The Guide is a ready to use resource easily accessible for educators globally. Crawford et al. (2020) observed that this intra-period has potential to be an enabler of more flexible and innovative digital education methods. The Guide can be an intra-period and future practical resource to encourage and harness fresh preparedness for the uptake of new teaching strategies. The renewed interest in technology enhanced learning and teaching for a diverse range of learners who may not have access to reliable internet provides valuable insights to further improve online learning for the benefit of all stakeholders: students, facilitators and institutions.

A review of the literature on the experience of facilitators in the use of online instructional guides for AOD suggests that, while guides are available within the grey literature, there is a scarcity of studies on the usage of any guides, and on how effective they are in supporting digital engagement with students. According to Mayes et al. (2011), online facilitators face a daunting task of reviewing an increasing amount of literature to enable them to facilitate effectively. This can be simplified by the access to the Guide. The current study endeavoured to contribute to the literature, and to report the use of this AOD Guide both locally and globally.

Methods

Formative study and participants

To explore understanding of discussion board facilitation both students and facilitators were invited to participate in an ethics approved study (University of Tasmania Social Sciences Ethics H0013544). Students completed an online survey and semi-structured interviews with facilitators were undertaken. The findings indicated that a guide for facilitation of discussion boards would be beneficial and may provide best practice evidence-based guidelines for use within the UTAS LMS.

Development of the Guide

The findings of the formative study led to the development for UTAS staff of the Guide to online discussion boards (Douglas et al., 2017b). The facilitator perspectives of using discussion boards is currently in press (Douglas et al., in press). To support the findings and strengthen the evidence base, the researchers conducted a comprehensive search of the literature to scope for current resources regarding online learning and teaching, specifically facilitation. The databases ERIC, Scopus, Web of Science and Google Scholar were searched using terms including: asynchronous discussion, discussion boards, online learning, e-learning, facilitator, online training, pedagogy, and student engagement.

Literature searches of journals were also conducted to ensure currency of the information aligned with current pedagogy. Triangulation of the information was undertaken by each of the researchers being responsible for development of chapters within the proposed Guide. The research group met monthly and then fortnightly over a 12-month period to collaboratively workshop and produce the Guide and ensure researchers understood the scholarly intent. Collaborative discussions also ensured that all researchers involved were congruent in the purpose and Guide development outcomes.

In consultation with two members of the team, the Guide was converted to webpages by a web developer. A downloadable version of each chapter and a full version of the Guide was also provided to ensure users had access to the information in the Guide in more than one format. A feedback form was provided to users for comments, which could be used to amend or improve the Guide over time. Evaluation of the Guide was embedded as part of the research process. Interviews with self-identified Guide users and facilitators, and feedback from the website, were collated. Additionally, the Google Analytics data was uploaded monthly to monitor the use of the Guide. It was anticipated that this data could be used to direct further development or alteration of the type of information or format provided for use. Google Analytics data has been collected since the launch of the Guide (http://www.teaching-learning.utas.edu.au/communication/online-discussions) in November 2017 at the UTAS Teaching Matters conference (Douglas et al., 2017a).

Analysis of Guide use

For the purpose of this paper, the use of the guide has been monitored using Google Analytics for the period of 1 May 2019 to April 2020. Data regarding the number of users and user type, page views, downloads and time in sessions has been obtained and averages determined. Feedback from students and facilitators via anonymous student evaluations and facilitator focus group interviews within a single unit of study has been obtained. This has provided a snapshot into the value of the guide to enhance discussion board design and facilitation.

Results

The online discussion board was hosted on the learning and teaching component of the UTAS website with open access available. From May 2019 to the end of April 2020, Google Analytics and download data from the UTAS Open Access Repository (ePrints) were analysed using Microsoft Excel to gain a snapshot of access to the guide in the last 12 months. During this time period, there was a total of 252 downloads from the website (Figure 1). The majority of these were from Australia, with the highest download month being reported

in August 2019, March 2020 and April 2020.

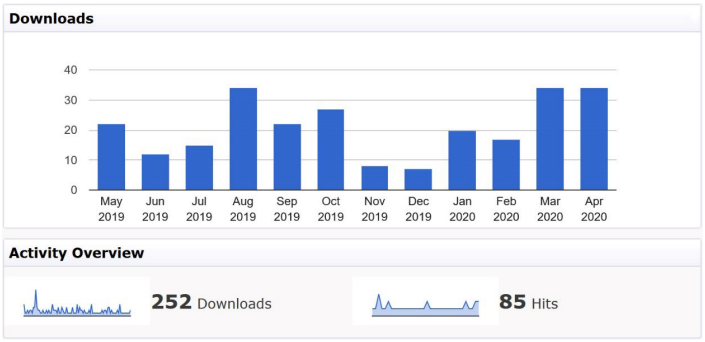

Figure 1: Total document downloads in 12 Months (May 2019 to April 2020) (https://eprints.utas.edu.au/27198/)

The number of downloads increased in August, 2019 and March and April, 2020. The fewest downloads corresponded with the breaks between semesters, as shown by the figures for January and February, June and July, and November and December.

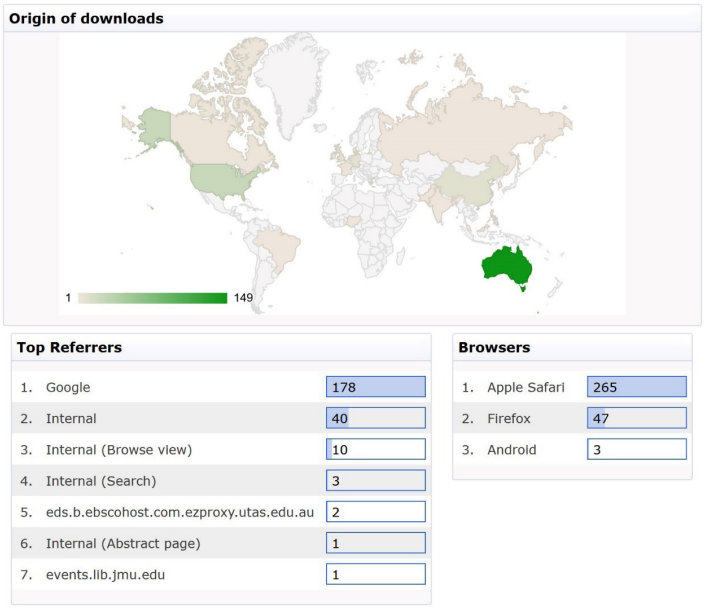

Figure 2: Origin of downloads from May 2019 to April 2020 (https://eprints.utas.edu.au/27198/)

Google Analytics data indicated that the Guide was downloaded predominantly from Australia, however, North America, United Kingdom, China, South East Asia, and Germany, using a variety of search engines was also recorded (Figure 2). Google was commonly used as the search engine to locate the existence of the Guide and Apple Safari was the most common browser used.

From May 2019 to April 2020, 1291 users accessed the Guide with over a total of 1400 sessions. Within this time, 218 page views occurred. The largest number of sessions were recorded in March and April 2020 with 88% of users identified as new users during this time. This finding aligns with a period of learning and teaching impacts created by COVID-19 across the education sector. The amount of time spent viewing the pages online was minimal, indicating that users are more likely to download or copy information than spend time reading information online. Bounce rates support this download assertion, as they are indicative of single page sessions, in which the user views one page and then exits the website. The bounce rate on average for the Guide was 64.1% per month and the average amount of time spent viewing the Guide online was 1 minute. More than 80% of the views each month were new, suggesting that individuals accessed the Guide and were able to download or retrieve the required information rather than continually re-visiting the Guide for additional assistance.

The Guide is divided into chapters: purpose of online discussion boards; learning design and netiquette; engagement; facilitation; assessment; review and evaluation; and a checklist of tips and tricks. These sections were determined via survey and interview data from participants in the UTAS academic community. Google Analytics data identified that the most common chapters of the Guide to be accessed during the 12-month period were assessment (34.6% of page views), followed by learning design and facilitation (14.6% of page views), and thirdly, design and netiquette (13.4% of page views). Design and netiquette chapters were particularly popular during February 2020 to April 2020 which correlates with the impact of COVID-19 on learning and teaching globally.

Once the Guide was available for facilitators, they were interviewed. Students were asked to participate in an online survey to indicate their experiences of online discussion boards. Facilitators responded positively to their experience of facilitating online discussions once they had access to the Guide as a resource:

> "I initiated the conversation each week to get the discussion going and the students were totally engaged"

> "the frequency of my engagement provided an opening for students to answering their questions and responded to each other"

> "being proactive and responding every day allowed the students to engage in almost real-time like a tutorial"

> "Understanding how different students engage differently was a huge learning experience"

Similarly, students also experienced a positive learning experience when facilitators were supported by the availability of the online Guide:

> "really enjoyed reading other students' opinions and sharing my own"

> "It really challenged the way I think…. It was also really good to have facilitator opinions to consolidate learning"

> "topics such as disability and mental health really opened my eyes and the discussion posts helped my learning"

> "The facilitators being present allowed students to respond in almost real time"

Responses reinforced the value of the Guide to enable online discussion boards to be used as an effective learning platform and pedagogical tool.

Discussion

The initial purpose of the Guide was to provide open access support to educators and facilitators by providing a resource to assist with gaining understanding and insight, including valuable tips for effective online discussion board use in higher education, based on a need identified within our University context. Asynchronous online communication can enable critical reflection and rich discussions of learning and teaching (Salter et al., 2017) as an essential component of active learning. However, staff involved in facilitating AODs need to be resourced to promote these rich learning environments that create positive learning experiences. Facilitation is widely recognised as essential to an effective online discussion (Ladyshewsky, 2013). Effective online discussion board design fosters student engagement (Hew et al., 2010), and assessment is also feasible within discussion board contexts (Douglas et al., 2015). The 12-month period of the use of the Guide as identified through the analytical data in this study indicates that assessment, design and facilitation were the most commonly accessed chapters of the Guide. During the initial research before the development of the Guide, the project team identified design of effective discussion boards, the use of discussion boards in assessment and the role of the facilitator in meaningful discussions as areas that educators required support (Douglas et al., 2015; Douglas et al., in press). The popularity of these chapters was further evidence that these were areas of need for educators seeking advice or information about online discussions.

The Guide was designed as a fit-for-purpose tool for a specific LMS. However, it was envisaged that aspects of the Guide would be useful to any users of online discussion boards. The chapters within the Guide enable users to easily access specific content areas related to enabling effective online discussion and so a high bounce rate by users (average 61.3%) is not interpreted as a poor result. Rather, the bounce rate indicates that users are accessing the sections of the Guide which are of relevance to their current learning and teaching requirements.

The literature review establishes that online discussion boards are valuable to student learning, support and engagement, providing a flexible and constructive form of professional learning whilst maintaining the currency of unit content. With this awareness in mind, the Guide provides strategies to improve positive and informative dialogue between students and educators. The sections of the Guide allow educators to select topics in designing and utilising online discussion boards effectively based on their current ability, allowing skills and ideas to build progressively as confidence builds. An example of how the Guide can be effectively used is demonstrated by an educator who has experience using boards for a general chat but has not as yet facilitated a discussion or assessed student responses; the guide provides strategies and examples for immediate application. The Guide incorporates the student voice through the use of student comments in sections to inform the reader of the value and possible opportunities for application of the tools, strategies and techniques presented.

Smalley (2020) noted previous studies have warned that student performance, particularly for students who are already academically struggling, can seriously suffer during online studies. Smalley also observed that research has found up to 20% of college students have issues accessing effective technology including working laptops and reliable high-speed internet. The Guide can assist educators to use asynchronous communication and facilitated discussions across student cohorts to improve the online experience nurturing those that are struggling or do not have reliable internet for synchronous studies.

Sixty-nine per cent of the downloads were from within Australia, which was not surprising given that the Guide was launched at an Australian university in response to the needs of that university. The pattern of downloads appeared to vary according to the university academic year in Australia with downloads consistently higher during common semester months across Australia. In addition, it was noted that 16% of downloads occurred in Northern America and Great Britain, indicating more interest in the Guide by English-speaking users. These countries have similar education systems; therefore, the relevance of the Guide could be similar in their learning and teaching contexts. Different countries do rely on different learning platforms, and teaching styles and computer-based technologies vary from country to country. Communications with colleagues have indicated that the Guide is a useful tool for facilitators planning and implementing online discussion boards within their curriculum (Douglas et al., in press). As the Guide was originally designed based on local knowledge and has only been advertised locally, it is encouraging that open access has enabled uptake of the Guide across the globe, albeit intermittently.

The existence of AODs is common in eLearning but has not been fully quantified globally, and the use of such boards as an assessment tool or solely as a communication tool varies within educational contexts (Serdyukov, 2017). As the Guide is written in English, English-speaking nations may use similar terminology and therefore provide search terms that enable them to easily locate the Guide as a resource. The use of English may explain why the Guide been accessed and downloaded more often within English-speaking countries. Furthermore, promotion of the Guide has only occurred locally within a single Australian university and so there is an expectation that Australia would be the main origin of users. The inclusion of eLearning both within higher education and in other education settings is increasing throughout the world (Sener, 2010). For this reason, blended learning paradigms incorporating AODs as an online communication tool are becoming more evident (Andresen, 2009). As blended learning becomes more prevalent, the need for a contemporary Guide will continue to increase to ensure that fit-for-purpose resources are available to support staff as they renew curriculum to accommodate current digital and

pedagogical needs (Ainscough et al., 2019; Dykman et al., 2008).

Patterns of access and downloads of the Guide are indicative of promotion peak points and often occurred during major semesters rather than at typical exam times or extensive breaks in the academic year in Australia (i.e. summer holidays). The high number of downloads in August 2019 may be due to the first assessment task (week 4) being due in the second semester within Australian universities. High downloads during March and April 2020 coincide with the impact of COVID-19 forcing higher education to transition quickly to fully online learning and teaching environment throughout many countries. It is interpreted that the overall download patterns are consistent with staff needs during semester, with peaks in access corresponding with promotion of the Guide within UTAS at local conferences and professional development activities, as well as the effect of the COVID-19 pandemic. Importantly, there are new viewers each month, suggesting that the Guide is consistently attracting new users, mainly within Australia, and also globally.

The data for browsers used to locate the Guide suggests there is a preference for Safari which is often used across a variety of devices. Unsurprisingly, Google is the most common search engine employed to find AOD information with more than three quarters of users using this engine to search for the Guide.

The Guide was originally designed to enhance facilitator skills, and so comparatively high use of this chapter of the Guide was enlightening. In addition to facilitation, the design of online discussion boards is known to be important in promoting discussion as an effective and engaging learning tool (Thomas & Thorpe, 2019). Well-designed asynchronous discussions have been found to enhance student engagement and learning (Ainscough et al., 2019; Dixson, 2010). It was encouraging to note that the design and netiquette section of the Guide was one of the most highly used. Educators often struggle with how to effectively assess students authentically, and so the regular access of the assessment chapter of the Guide indicates an interest in investigating online discussions as an effective form of assessment (Douglas et al., 2015). In addition, research has previously indicated that the use of referencing in online discussion boards can be unpopular amongst students (Douglas et al., 2015). The inclusion of referencing tips within the assessment chapter may be of interest to other educators who have experienced dissatisfied student cohorts.

The initial feedback obtained within UTAS indicates that the Guide is useful to instructors and has enhanced the value of online discussion boards in a fully online unit. Qualitative feedback from both facilitators and students highlights a richer experience in online discussion board usage as design principles and facilitation strategies from the Guide have been implemented (Douglas et al., 2018). Although full determination of the impact of the Guide globally from this evaluation of analytical data, local research has indicated that the Guide has enhanced learning and teaching practices within UTAS (Douglas et al., 2018). Improvements in facilitation have enabled students and facilitators to engage in enriched discussions across a range of disciplines.

Study limitations

This study, while providing useful insight into the use of the Guide had limited access to the Google Analytics and repository data. This lack of access hindered fully understanding the impact of the Guide beyond the UTAS setting, thus limiting a more granular understanding of the site and its users. Using other types of data analytics will enable a stronger check of performance of both promotion of the Guide and content along with heavy traffic areas and bounce rates.

Further investigation is needed on the bounce rates and to cross reference this rate with the time on each page. Some future considerations are, for example, whether the page load time is acceptable, whether formatting is suitable and checking the internal linking structure is logical and useful. Further, the number of people accessing the Internet from mobile devices is increasing. Future investigations should determine if the Guide should be optimised for mobile devices. A limitation of this study and an area for future research is the impact of supporting facilitators using digital engagement with international students, many of whom are learning in a second language.

Recommendations

The Guide was originally designed based on UTAS knowledge and advertised locally, however, as an open access ebook, there has been an intermittent global uptake. Broadly, it is envisaged using targeted promotion and marketing to encourage more educators to utilise the Guide from within UTAS and beyond our university attracting national and international users.

Expressions of scholarship are becoming more diverse and improvements of data analytics to determine who is using the Guide and the key traffic areas would be beneficial. Altmetrics can measure and monitor the reach and impact of the Guide through online interactions. Improving altmetrics and triangulating with other data analytics to understand which chapters are making the most impact will assist with the aim of improving the existing content to meet user needs and appeal to a wider global audience. As the Guide is in its third year of publication, the opportunity to collect longitudinal usage data to form a clearer understanding of users will be exercised along with collecting other evidence such as citation data.

There is currently a feedback box linked to the Guide on the UTAS teaching and learning website which needs to be more visible and promoted more effectively to enable users to provide opinions and suggestions. One example to improve feedback is the use of a pop-up survey before users leave pages of the Guide. The project team intends to continue to improve and evaluate the Guide based on feedback received. Additional improvements including a section to orientate novice facilitators of discussion boards and an online masterclass for facilitators are planned. In addition, a

version of the Guide suitable for students to enable them to engage in online discussions more effectively is envisaged. These additions will enhance the value of the Guide(s) to a global audience to provide effective 'just-in-time' resources for online learning and teaching practices.

Conclusion

Access to the Guide increases during promotions and at the beginning of semesters, with visitors accessing specific information according to relevant needs rather than browsing. There is a high proportion of new sessions each month, especially since the COVID-19 pandemic has moved higher education online, indicating that the Guide is appealing to a growing audience. Communications with UTAS staff indicate that the Guide has been a valuable resource to enhance online communication. Findings indicate that the Guide is contributing to interest in the pedagogical use of online discussion boards at a global level, although most users are currently located within Australia. The Guide has provided ideas to encourage and cement rich interaction between students and also between students and facilitators. This benefit reaches beyond the classroom to foster a range of positive graduate outcomes. Users found ideas to initiate and direct conversation, becoming confident participants exchanging information and expressing self-belief. The implications for practice from the Guide are a better fit between the learning outcomes of a unit and the ability of facilitators to use technology to achieve these outcomes. Facilitators responded positively to their experience of facilitating online discussions once they had access to the Guide.

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